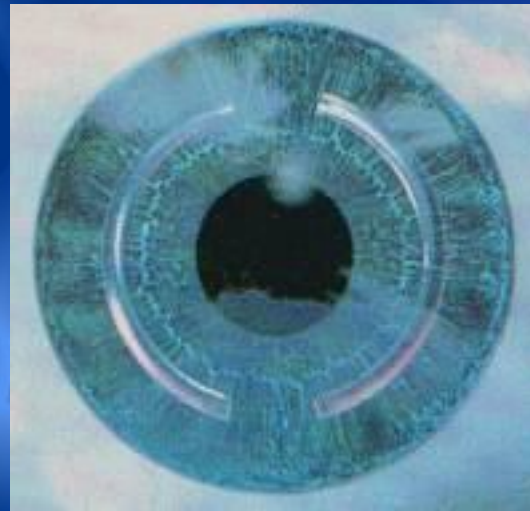


Sight Conservation and Eye Safety

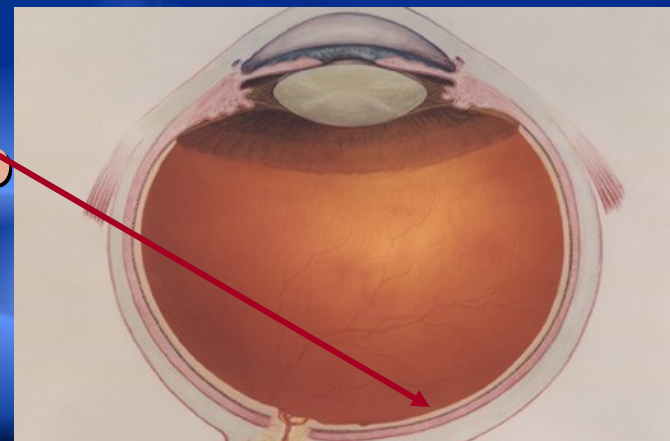
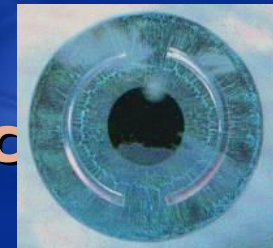
LG #5

A. Your Eyes' Defenses



Defenses

- **Tears**
 - Self-cleans the eyes of foreign material
- **Eye lid**
 - Physical barrier to some objects
- **Cornea**
 - Damaged ones can now be replaced
- **Inner eye (retina)**
 - Damage is irreversible



B. Types of Eye Injuries

Foreign Bodies

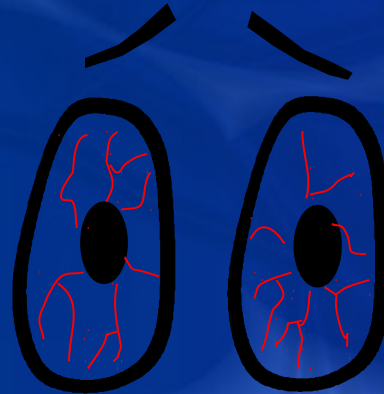
- **Most common of injuries**
- **Abrasions & Scratches**
 - **Can cause permanent scar tissue**
- **Contusions from large objects**
- **Irritations from fibers**
- **Particles in smoke or fumes**

Chemical Burns

- **Acids**
 - Precipitate a protein barrier preventing further penetration into tissue
 - Burn the surface of the eye and cause scars
- **Bases (alkalies)**
 - Damages tissue as long as there is contact
 - Dissolves fat-soluble tissue, turning it into “jelly”
- **Acids and Bases are both CORROSIVE**

Chemical Burns

- Gases in air can burn or irritate
- Vapors and mists can irritate and produce scarring
 - Paints
 - Pesticides
 - Cleaners
- In the Navy, the most frequent eye injuries result from handling fuels without eye protection



Irradiation Burns

- **Infrared light (heat lamps)**
 - Passes through cornea-absorbed by lens
- **Ultraviolet light (sun, welding)**
 - Causes flash burns
 - Delayed effects (4-6 hrs. after exposure)
- **Infrared and Ultraviolet light can cause permanent eye damage**



C. Navy Sight Conservation Program Elements

Program Elements

- **Identify eye hazards**
 - Survey all work areas to determine potential eye hazardous areas



Program Elements

- **Eliminate hazards by engineering controls**
 - **Eliminate hazards completely, where possible**
 - **Reduce eye hazards**
 - **Guards**
 - **Isolation of the process**
 - **Substitution of a less hazardous chemical**

Program Elements

- **Post eye hazardous areas**
 - Label all areas and pieces of equipment which are potentially hazardous
 - Use yellow & black caution signs:
 - to warn of eye hazard areas
 - to specify eye protection required
 - Mark the areas around eye hazards with yellow and black striping or checkerboard tape on the deck



Program Elements

- **Provide protection**

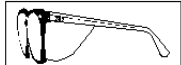
- Where hazards can't be eliminated or reduced, PPE is required
- Navy must provide all protective equipment
- Protection must be specific to the job
- Safety Officer will determine types to be worn
- Medical provides eye exams and screening:
 - for corrective needs
 - for personnel working around radiation sources



D. Eye Protection--Personal Protective Devices

Must Meet ANSI Standards

- Each manufacturer's glasses or goggles must be tested and approved
- Testing includes:
 - Impact
 - Permeability
 - Shatter proofing
 - Frame breaking strength
- Only ANSI approved eyewear may be used by Navy personnel
 - Must have "Z87" stamp



"Z87" All major components of protective eyewear, except lenses, must be marked "Z87." This mark indicates that the eyewear is in compliance with the standard. CSA or BSI may also be marked on the eyewear to indicate compliance with Canadian and British standards.



MANUFACTURER'S MONOGRAM
An initial or symbol specific to each manufacturer is used to mark the lenses and all major eyewear components.



"XS" Specialty lenses such as gray or anti-static lenses will be marked in this way. This type of lens is designed for specific visual tasks such as welding glass.

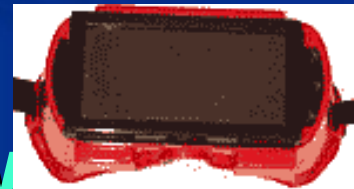


SHADE DESIGNATION A number marked on the lens indicates that it is a shaded lens. This type of lens is used for welding, glassblowing or where additional protection is needed from infrared radiation. Lenses may be green, brown or blue and are available in shades ranging from 1.5 to 14.

CAUTION Even if a lens is selected, it may not offer the same protection as a shaded lens. Be sure to check for the shade designation and consult ANSI Z80.1-1988 "Safety in Welding and Cutting" to determine the proper shade for your application.

Devices Designed for Specific Hazards

- Six general types of protective eyewear
 - Safety glasses/spectacles
 - Chemical goggles
 - Welding goggles
 - Chipping goggles
 - Welding helmets
 - Face shields
- Wear the right type!! Wearing the wrong type can be dangerous



Wearing Protective Devices

- **Wear double protection for acids and bases**
 - **Chemical goggles AND face shield !**
- **Face shields MUST be worn with safety glasses or goggles**
 - **Face shields may not be worn by themselves**
- **When working with UV light, wear protection based on level of light intensity**
 - **NO sunglasses!!**



Wearing Protective Devices

- **Navy will provide prescription safety glasses**
 - **See Safety Officer or MDR**
- **Regular prescription glasses CANNOT be worn as safety glasses**
- **Keep devices clean**
- **Discard if badly scratched or damaged**



E. Emergency Eye Wash Stations

Emergency Eye Wash Stations

- **Must flush with fresh water for minimum of 15 minutes**
- **Flushing is used to:**
 - Remove foreign objects
 - Dilute strong chemicals
- **Required wherever**
 - Corrosives are used (battery shops)
 - Particulate hazards exist (machine shop)



Eye Wash Requirements

- **Must meet ANSI standards**
- **Must provide continuous water flow**
- **Activated by one hand or foot motion**
- **Both hands free to hold eyes open (valve must stay open)**
- **May be combined with deluge shower for full body chemical first aid**



Eye Wash Styles

- Plumbed into ship's potable water system
- Portable, pressurized tank-type
- Gravity-fed portable self-container
- All covered by weekly or monthly

PMS
*Note: OPNAVINST 5100.19 (series), Chapter B5
complete list of compartments and processes
an eye wash or deluge shower.*

F. Program Enforcement

Enforcement

- **Personnel working in eye hazardous areas MUST wear eye protection**
- **Supervisors must set the example**
- **Visitors/guests provided with eye protection**
- **Some sports (racquetball) are hazardous. Wear sport goggles**
- **Encourage personnel to wear eye protection at home (hobbies/lawn work)**

G. Eye Injury First Aid

First Aid

- **Never rub eyes to remove particulates**
- **Chemical burns**
 - **Flush for 15 minutes (minimum)**
 - **Get medical attention!**
- **Punctures and trauma**
 - **Cover with a clean, soft cloth**
 - **Get medical attention!**

First Aid

- **Report ALL minor cuts and eye problems to medical**
 - **Minor scratches may lead to potential infections with resulting scar tissue formation, loss of sight, or other significant damage**